

WHAT IS CLAIMED IS:

1. A method for manufacturing an electron emission element comprising between its electrodes a conductive film having an electron emission section,  
5 the method comprising the steps of  
forming a gap in the conductive film located between the electrodes, and  
applying a voltage between the electrodes in an atmosphere that has an aromatic compound with a  
10 polarity or a polar group and in which the partial pressure ratio of water to the aromatic compound is 100 or less.
2. The method for manufacturing an electron emission element according to claim 1 wherein the  
15 partial pressure ratio of water to said aromatic compound is 10 or less.
3. The method for manufacturing an electron emission element according to claim 1 wherein the  
20 partial pressure ratio of water to said aromatic compound is 0.1 or less.
4. The method for manufacturing an electron emission element according to claim 1 wherein the  
25 partial pressure ratio of water to said aromatic compound is 0.001 or less.

5. The method for manufacturing an electron emission element according to any one of claim 1 to 4 wherein said aromatic compound has a cyano group.

5 6. The method for manufacturing an electron emission element according to any one of claim 1 to 4 wherein said aromatic compound is benzonitrile or p-tolunitrile.

10 7. The method for manufacturing an electron emission element comprising between its electrodes a conductive film having an electron emission section, the method comprising the steps of

forming a gap in the conductive film located  
15 between the electrodes, and

applying a voltage between the electrodes in an atmosphere of an aromatic compound that has a polarity or a polar group and from which moisture has been removed.

20 8. The method for manufacturing an electron emission element according to claim 7 wherein said aromatic compound has a cyano group.

25 9. The method for manufacturing an electron emission element according to claim 7 wherein said aromatic compound is benzonitrile or p-tolunitrile.

10. A method for manufacturing an electron emission element comprising between its electrodes a conductive film having an electron emission section, the method comprising the steps of

5       forming a gap in the conductive film located between the electrodes, and

10       applying a voltage between the electrodes in a chamber from which moisture has been removed, in an atmosphere of an aromatic compound having a polarity or a polar group.

15       11. The method for manufacturing an electron emission element according to claim 10 wherein said aromatic compound has a cyano group.

20       12. The method for manufacturing an electron emission element according to claim 10 wherein said aromatic compound is benzonitrile or p-tolunitrile.

25       13. The method for manufacturing an electron emission element according to any of claims 1 to 12 wherein said electron emission element is a surface conduction electron emission element.

30       14. The method for manufacturing an electron source comprising a substrate and a plurality of electron emission elements arranged thereon wherein

said electron emission elements are manufactured using  
a method according to any of claims 1 to 13.

15. The method for manufacturing an image forming  
5 apparatus comprising an electron source including a  
substrate and a plurality of electron emission elements  
arranged thereon; and an image forming member for  
forming images using electron irradiation from the  
electron source wherein said electron emission elements  
10 are manufactured using a method according to any of  
claims 1 to 13.